



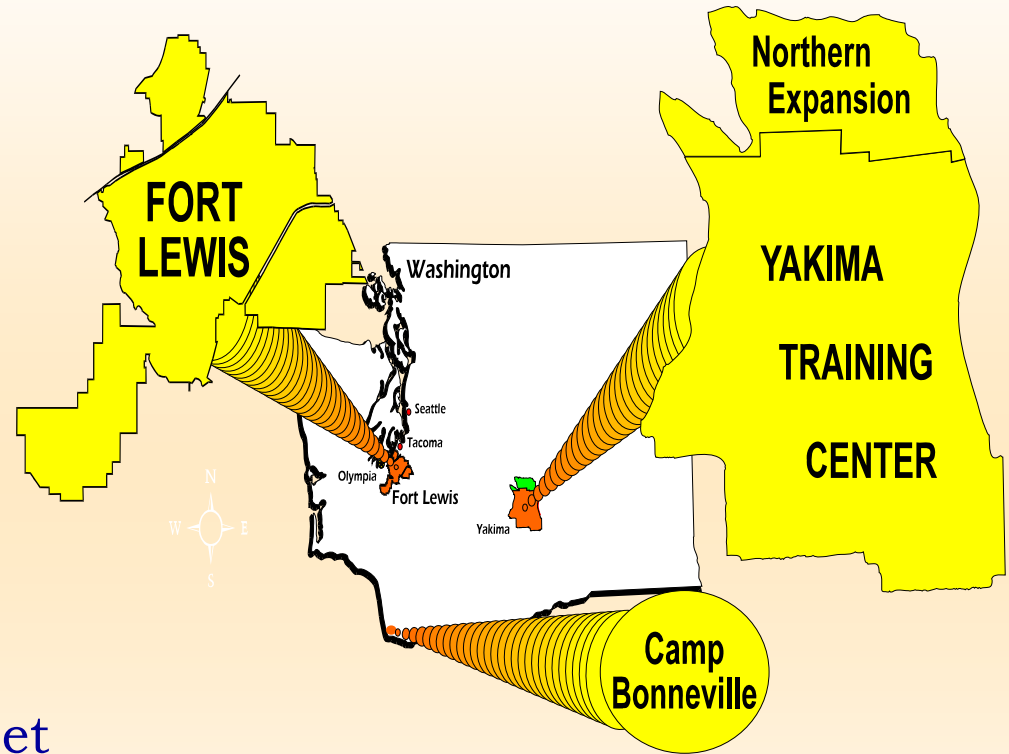
# **Fort Lewis Installation Sustainability Program**

**Terry Austin  
Installation Sustainability  
Coordinator**

**Fort Lewis, WA**



# I Corps & Fort Lewis



- Facilities - 22 million square feet
- Industry – maintenance & training
- Major utilities
- Emergency services (MAMC)
- Housing - family and single soldiers
- Goods and services

Ft. Lewis - 86, 176 Acres  
Yakima - 323,651 Acres



# “Sustainability”?



**“The application of the Golden Rule  
*from generation to generation.*”**

## Common Key Points

- **Triple Bottom Line –economy, equality, ecology**
- **A System of Systems**
  - **feedback loops**
  - **cross linkages**
- **Urgency, hope, solution oriented**
- **We’re all in it together**



# What Does Sustainability Have Mutually Beneficial Relationship With the Community To Do With the Military?

**“The focus of the FORSCOM Installation Sustainability Program is to answer this question at each installation: How do we decrease the total regional environmental footprint...to ensure that our installations can continue to train and deploy combat-ready troops...and that our communities have a productive future?”**

*- Major General James E. Donald, U. S. Army Forces Command  
Deputy Chief of Staff for Personnel and Installation Management*



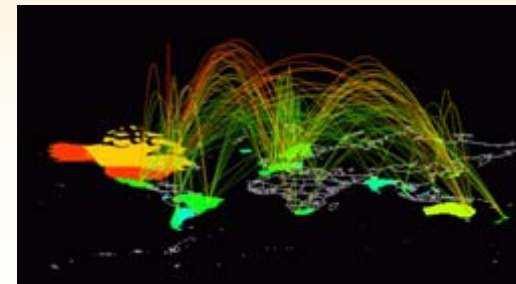
# Yeah But,... the Military?



- Radar/Microwave Ovens
- Interstate Highway System
- Social Integration
- Advances in Air Travel
- The Internet



**Why not Sustainable Development as well?**





# Why Move To Sustainability When ~~We Have Done A Good Job~~ a decade of ~~planned~~ work



“I am convinced that the military ought to organize and run a nationwide environmental clean up and education program, maybe **with the guys at Fort Lewis in command**”

*Jessica Maxwell, Pacific Northwest Magazine*

“Fort Lewis could leave a large footprint on the environment in Western Washington; instead, **the Fort is a model for how to protect the environment**”

*Sue Mauermann, WA Dept of Ecology, Regional Director*

## Fort Lewis Gasses Spanaway: Schools Evacuated

*Tacoma News Tribune*

*Tacoma news Tribune*

*Curt Soper, Nature Conservancy of Washington*

“There are trees in there. Five hundred year old trees. May be a thousand. Nobody bothers them. Fort Lewis, the Army, protects them. You have to understand their mission. **The Army's mission is to train troops, not to cut trees..**”

*Billy Franks, Nisqually Indian and Chairman of the Northwest Indian Fisheries Commission*



# Fort Lewis Sustainability Goals



1. **Reduce** traffic congestion and **air emissions by 85% by 2025**
2. **Reduce air pollutants from training without a reduction in training activity**
3. **Reduce** stationary source **air emissions by 85% by 2025**
4. **Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025**
5. **All facilities** adhere to the **LEED Platinum standard for sustainable facilities by 2025**
6. **Cycle all material use to achieve ZERO net waste by 2025**
7. **Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural, and economic values by 2025**
8. **Recover all listed and candidate federal species in South Puget Sound Region**
9. **ZERO discharge of wastewaters to Puget Sound by 2025**
10. **Reduce Fort Lewis potable water consumption by 75% by 2025**
11. **Fort Lewis contributes no pollutants to Groundwater and has remediated all contaminated groundwater by 2025**
12. **Develop an effective regional aquifer and watershed management program by 2012**



LTG Hill addressing the Fort Lewis Sustainability Conference, Feb 2002.  
“It’s the right thing to do.”



# Integration



**Installation Sustainability Program**

**From Lofty Goals**

**DRIVEN BY:**

- SELC – March 2000
- FORSCOM – Feb 2002
- New Army Env. Strategy
- **Good Common Sense**

**ISO 14001 Environmental Management System**

**REQUIRED BY:**

- Executive Order 13148 - 22 April 2000
- Memorandum from DASA - 13 July 2001
- Memorandum from DOD - 5 April 2002
- **Good Business Sense**

**Into Daily Work**



**Sustainability Management System**

- 5-year Plan with objectives
- Annual Targets each FY
- **Funded Projects**





# Fort Lewis Sustainability Program



## Air Quality Team

- 1. Reduce traffic congestion and air emissions by 85% by 2025**
- 2. Reduce Air pollutants from training without a reduction in training activity**
- 3. Reduce stationary source air emissions by 85% by 2025**

**Short Term Objective - Alternate Fueling Station in place for use by Fort Lewis and surrounding community by 2010**

### Benefits

- Get off the petroleum habit and reduce our dependence on foreign oil
- Transition to bio-based/renewable fuels - Support US agriculture
- Set up for shift to hydrogen power



# Transition to Renewable Fuels



## Alternate Vehicle Fuels

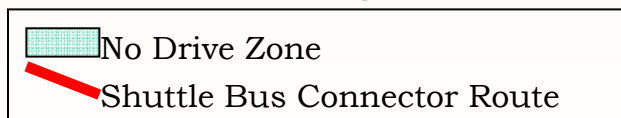
- **Permanent Alternate Fueling Station by 2010**
  - Sited to benefit greater community
- **Compressed Natural Gas (CNG) station**
  - August 2003
- **Biodiesel (B20) station**
  - December 2004
- **Ethanol (E85) station**
  - April 2005
- **GSA leased fleet transitioning to dual fuel compatible**



**MG Collins, Deputy  
Commanding General Fort  
Lewis fills GSA vehicle with  
CNG fuel**



# Pilot Mass Transit



- Increasing troop population
- Leading to increased density
- Parking will be vastly reduced
- “Campusing”
- Shuttle Soldiers from installation residence or park and ride facilities to work
- Pilot transit system will be very robust
- A successful pilot = expansion across the installation
- Pilot being built with cooperation of local transit and use DOT mass transit vouchers



# Fort Lewis Sustainability Program



## Infrastructure & Energy Team

- 4. Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025**
- 5. All facilities adhere to the LEED Platinum standard for sustainable facilities by 2025**

**Short-Term Objective - LEED Gold Construction Policy by FY 2005**

### Benefits

- Resource Conservation – energy, water
- Reduced impact on the environment
- Increased worker productivity; reduced absenteeism
- Reduced building maintenance and operational costs



# Infrastructure & Energy Team



**All facilities adhere to the LEED™ platinum standard for sustainable facilities by 2025**

- **Establish minimum LEED™ rating to be achieved on new construction**

- *LEED™ built into campusing projects that will be incorporated into future building construction projects (sidewalks, lighting, parking)*

- **Develop baseline LEED™ rating for all permanent buildings by FY2005**

- *Develop a web-based mechanism to capture sustainable features (LEED™ checklist data) usable by planners, designers and engineers*

- **Design and construct LEED™ elements in Major Construction Army projects**

- *Fort Lewis construction policy is to achieve LEED™ Gold*



# Infrastructure & Energy Team



## Whole Barracks Project

- **Heat recovery from dryer**
- **Energy efficient washers/dryers, horizontal axis**
- **Direct Digital Controls- remote control for energy savings**
- **Native landscaping – reduced water requirement**
- **Finished concrete flooring**
- **Compact fluorescent lights**
- **Zero VOC paints and adhesives**
- **20% of materials manufactured locally**
- **Plastic Lumber used for recreational furniture**
- **Underground water cisterns for summer irrigation**



**Covered Bike Racks and Recycling Station**



**Heat Recovery from Dryer Vents**



**Plastic Lumber Picnic Tables**



**Energy Star Horizontal Axis Washers**



# Infrastructure & Energy Team



**Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025**

- **Reduce energy consumption**
  - LED traffic lights
- **Encourage acceptance and use of innovative energy systems (IES)**
  - *Solar wall will provide free heating and ventilation for two logistics center warehouses*
  - *Two solar powered recharging stations for Neighborhood Electric Vehicles (NEVs)*
- **Generate 20% energy on post by FY 2008, 25% of electricity from renewable sources by FY 2008**
  - *Install solar array on roof of the Fort Lewis Grandstaff Library*





# Infrastructure & Energy Team



## Feasibility Studies

- **Conduct studies to identify feasibility and locations of pilot ‘energy generating’ projects to include geothermal, tidal and solar**
- **Studies re: permanent alternate fuel station (business plan)**
- **Determine uses for landfill and wastewater treatment plant gas (methane)**
- **Determine which technologies will best meet energy demands (2005 – 2025)**
- **Identify existing limitations of current land use plan with regard to minimizing energy use, vehicle use, paved parking surfaces and impact on natural systems**
- **Determine best technologies to decentralizing the utility services to remote sites**





# Fort Lewis Sustainability Program



## Products & Material Management Team

**6. Cycle all material use to achieve ZERO net waste by 2025**

**Short-Term Objective - Achieve 40% reduction in waste stream leaving Fort Lewis by 2005**

### Benefits

- Support DoD MOM to increase diversion of solid waste from landfills
- Cost savings through material reuse
- Cost avoidance through reduced waste disposal fees



# Fort Lewis Progress



## Model Motor Pool

- **Identifies, segregates, recycles/reuses major waste streams from vehicle maintenance facilities**
- **Saves unit dollars, increases process efficiencies, increases safety and ergonomic factor for mechanic**
- **Cost Savings for 13 Model Motor Pools over the last 3 years = \$185,000**



**#1 - Bulk tanks ready to dispense needed material**



**#2 - Fluid collection/transfer containers**



**#3 - Collection of Recyclable Material**



# Reuse of Construction Material



## ASPHALT...

Same asphalt –  
new life stabilizing  
a tank trail



Asphalt pile from  
airfield runway  
renovation



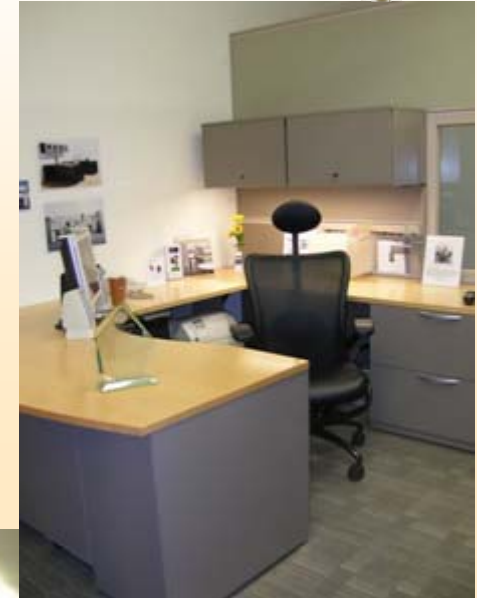


# Products and Materials Management Team



## Sustainable Interiors Showroom

- Furniture/carpet is one of the largest solid waste streams
- Furniture and flooring lifecycle
  - Long term/ lifetime warranty
  - Recycled content and/or recyclable
- Meets Green Procurement requirement





# Fort Lewis Sustainability Program



## Water Resources Team

- 9. ZERO discharge of wastewaters to Puget Sound by 2025**
- 10. Reduce Fort Lewis potable water consumption 75% by 2025**
- 11. Fort Lewis contributes no pollutants to Groundwater and has remediated all contaminated groundwater by 2025**
- 12. Develop an effective regional aquifer and watershed management program by 2012**

**Short-Term Objective - Reduce potable water consumption and wastewater discharge 25% by 2007**

### Benefits

- Eliminating wastewater discharge reduces permitting concerns
- Converting wastewater to water useable for irrigation and other non-consumption uses conserves our water resources



# Water Resources Team



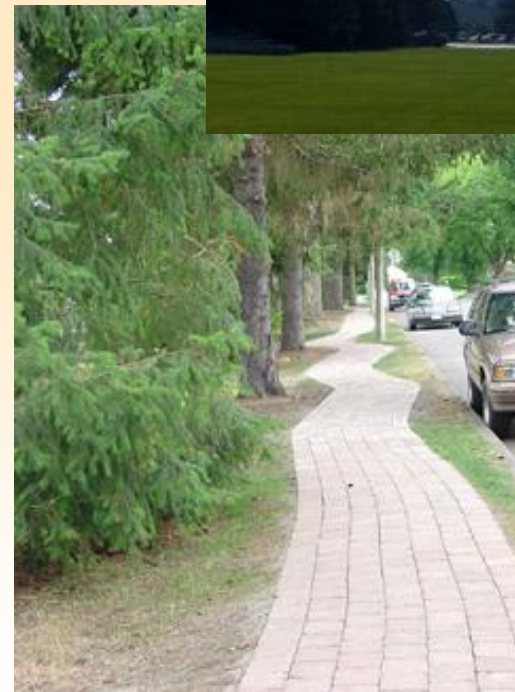
## Permeable Sidewalks and Computerized Irrigation

### Permeable Sidewalks ~

- Reduce storm water runoff from paved areas
- Reduce sediment release into storm water drains and into Puget Sound
- Increase infiltration of storm water to groundwater
- Preserve trees
- Retain shade areas
- Increase aesthetics

### Parade Field Irrigation~

- Identifies soil/ vegetation requirement
- Timed



**Watkins Field-  
Computerized  
Irrigation**

**Permeable  
Sidewalk –  
paving stones**



# Water Resources Team



## Key to Success:

### Treat all Wastewater Treatment Plant effluent to Class A reclaimed water standards

- Prepare major construction project request (Congressional approval)
- Study various options for discharging and reusing reclaimed water
- Complete sewage comprehensive plan
- Construct necessary infrastructure for treating wastewater to Class A reclaimed water standards

### Benefits:

Reduces potable water use

Reduces pollution to Puget Sound – opens up additional shellfishing grounds

Conserves valuable resources

Prevents depletion of Sole Source Aquifer



# Fort Lewis Sustainability Program



## Sustainable Training Lands Team

- 7. Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural, and economic values by 2025**
- 8. Recover all listed and candidate federal species in South Puget Sound Region**

**Short-Term Objective - 2 to 3 sites identified and acquired in regional proximity to installation to reduce encroachment, maintain training capability, and promote natural resources conservation**

### Benefits

- Provide additional habitat for listed and candidate species beyond installation training areas
- Provide a noise and dust buffer between military training activities and neighboring communities

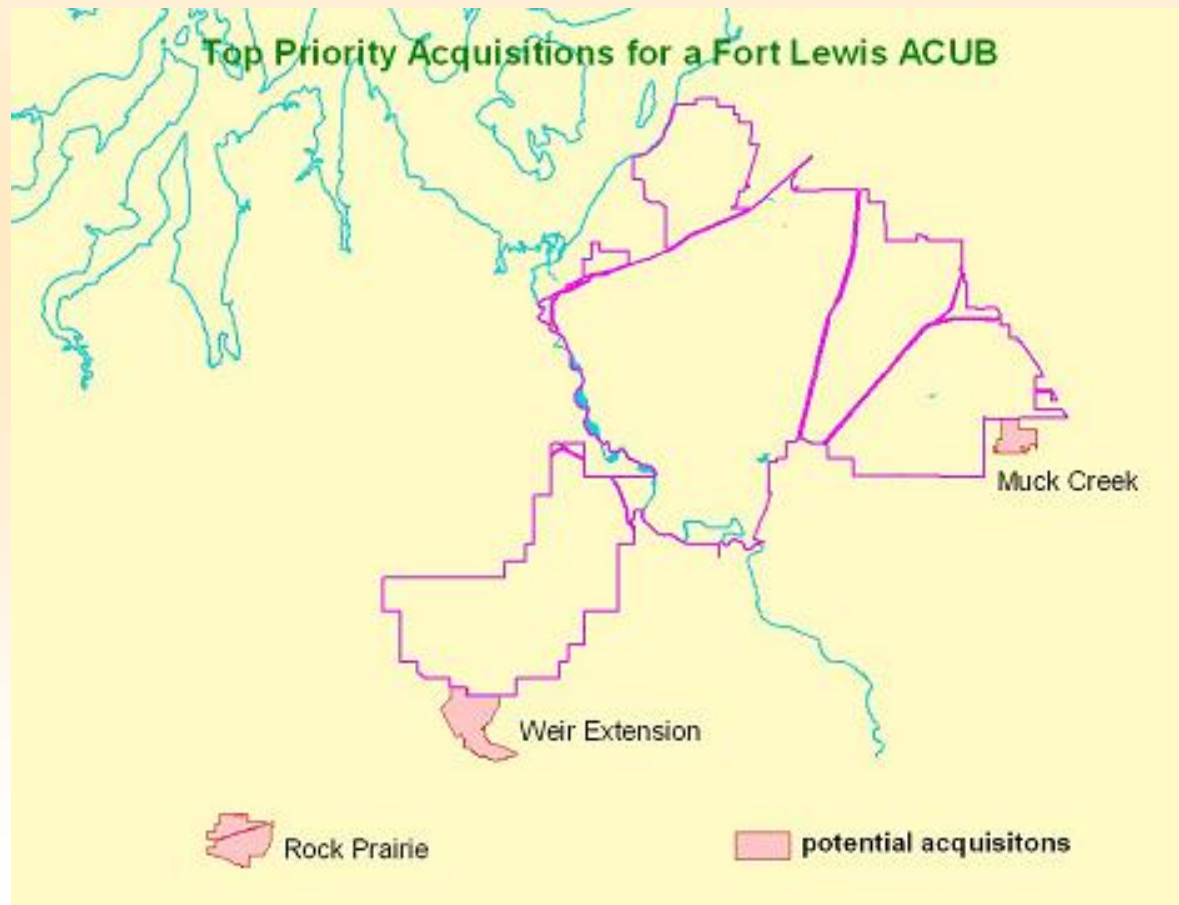




# Sustainable Training Lands Team



## Army Compatible Use Buffer (ACUB)



### Three priority areas:

- 3,397 acres
- \$12 million purchase
- \$1.2 million restoration
- \$120,000 annual management
- Cost-sharing with ACUB partners



# From Landfill to Native Prairie





# Teams Working Together To Reform A Landfill





# Army Strategy for the Environment



**Foster a Sustainability Ethic** *that takes us beyond compliance to sustainability*

**Meet Test, Training and Mission Requirements** *by sustaining land, air and water resources*

**Strengthen Army Operations** *by reducing our environmental footprint through sustainable operations*



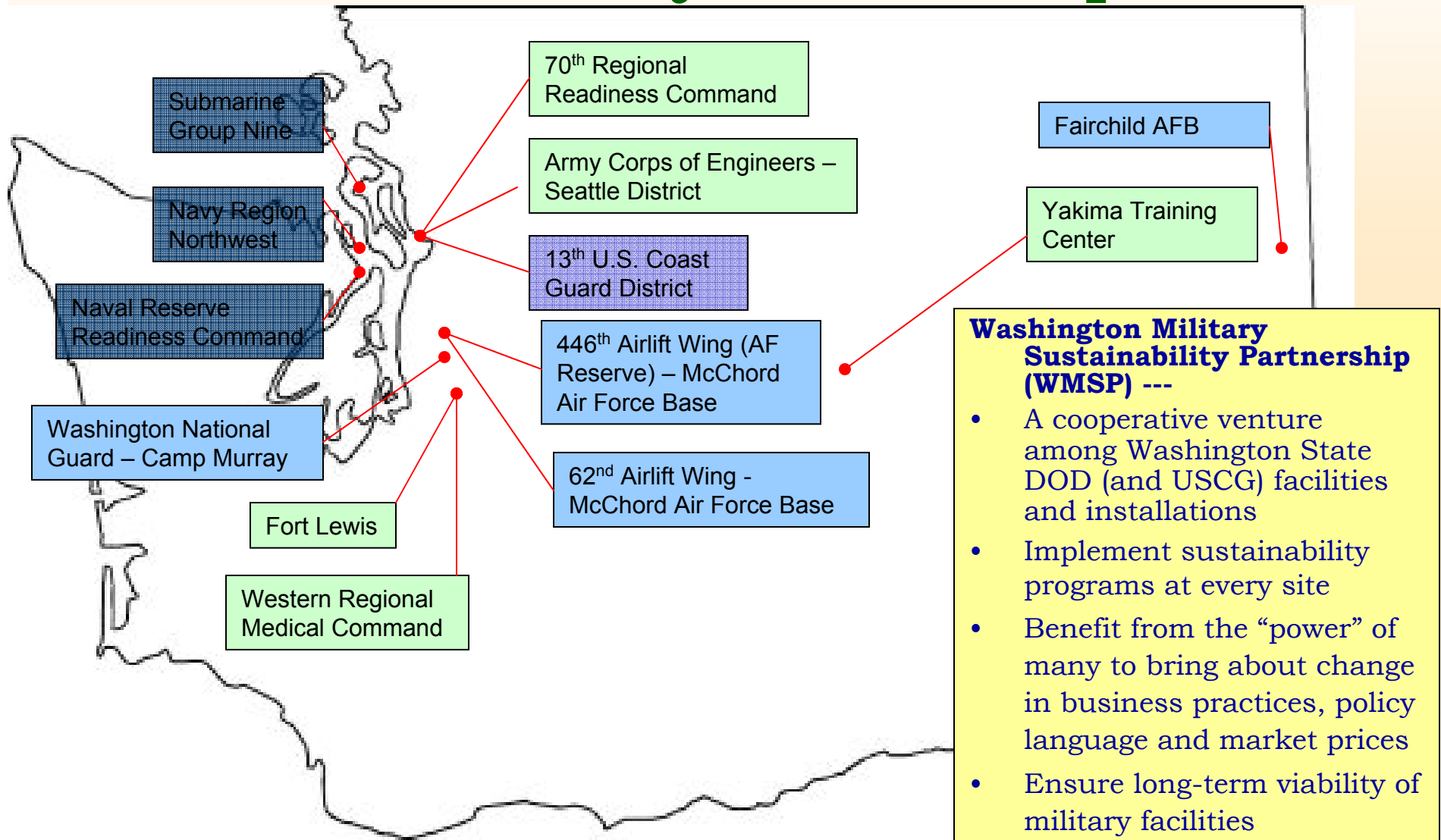
**Minimize Impacts and Total Ownership Costs** *by integrating the principles and practices of sustainability*

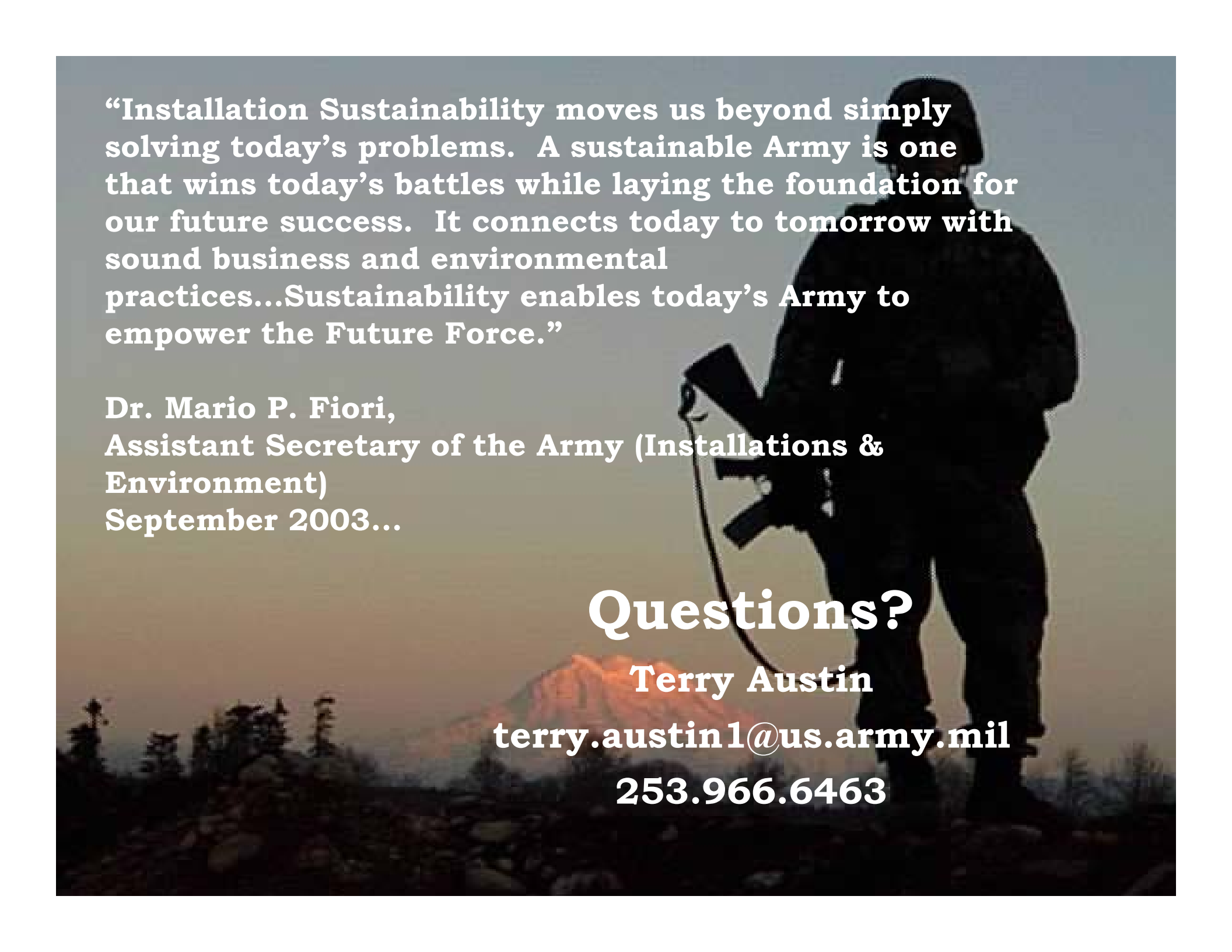
**Drive Innovation** *using sustainability to meet Army's current and future needs*

**Enhance Well-Being** *through leadership in sustainability*



# Washington Military Sustainability Partnership





**“Installation Sustainability moves us beyond simply solving today’s problems. A sustainable Army is one that wins today’s battles while laying the foundation for our future success. It connects today to tomorrow with sound business and environmental practices...Sustainability enables today’s Army to empower the Future Force.”**

**Dr. Mario P. Fiori,  
Assistant Secretary of the Army (Installations &  
Environment)  
September 2003...**

**Questions?**

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